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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/743,778

12/24/2003

Jeong Dae Seo

K-0597

9463

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04/16/2007

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Chantilly, VA 20153-1200

EXAMINER

THOMPSON, CAMIE S

ART UNIT

PAPER NUMBER

1774

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/743,778

Applicant(s)

SEO ET AL.

Examiner

Camie S. Thompson

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed January 31, 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

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DETAILED ACTION

1. Applicant's amendment and accompanying remarks filed January 31, 2007 are acknowledged.
2. Examiner acknowledges amended claims 1-10.
3. The rejection of claims 1-9 under 35 U.S.C. 112, second paragraph is overcome by applicant's amendment.

Claim Rejections - 35 USC § 102

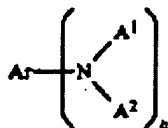
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2 and 6-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohnuma et al., U.S. Patent Number 5,153,073.

Ohnuma discloses an electroluminescent device comprising an anode and a cathode and one or plurality of organic compound layer sandwiched therebetween wherein at least one of the organic compound layers (luminescent layer) is represented by the general formula



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wherein A¹ and A² each represents a substituted or unsubstituted alkyl group, or a substituted or unsubstituted aryl group, which may be identical or different with each other, Ar represents a substituted or unsubstituted pyrenyl group and n represents 1 (see column 2, line 43-column 5, line 45). The reference also discloses that the luminescent layer is formed by combining a mixture of compounds (see column 12, lines 20-26).

Claim Rejections - 35 USC § 103

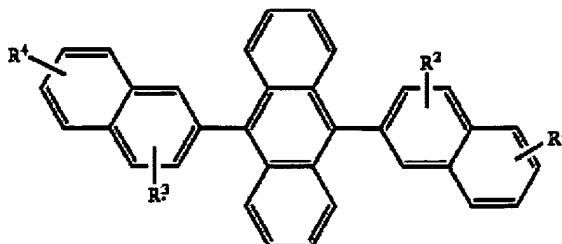
6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al., U.S. Patent Number 5,935,721 in view of Ohnuma et al., U.S. Patent Number 5,153,073.

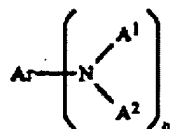
Shi discloses an organic electroluminescent device comprising an organic electroluminescent element disposed between an anode and cathode (see column 2, lines 9-14). The Shi reference also discloses that the luminescent element comprises an anthracene derivative with formula

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wherein R_1 to R_4 can be hydrogen. The Shi reference reads on instant claim (H-16) when the substituents are hydrogen. Column 47, lines 59-68 of the Shi reference disclose that the luminescent layer comprises a host material doped with at least one or more fluorescent dyes for tuning of the color of the EL device. Column 48, lines 3-23 of the reference discloses the use of conjugated benzenoids as blue dopants. The Shi reference does not disclose the pyrene dopant as present by the present claims.

Ohnuma discloses an electroluminescent device comprising an anode and a cathode and one or plurality of organic compound layer sandwiched therebetween wherein at least one of the organic compound layers is represented by the general formula



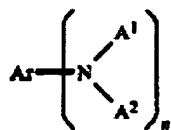
wherein A^1 and A^2 each represents a substituted or unsubstituted alkyl group, or a substituted or unsubstituted aryl group, which may be identical or different with each other, Ar represents a substituted or unsubstituted pyrenyl group and n represents 1 (see column 2, line 43-column 5, line 45). Ohnuma also discloses the luminescent layer is formed by combining a mixture of

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compounds (see column 12, lines 20-26). The compound of the Ohnuma reference is a conjugated benzenoid and meets the limitations of the pyrene materials by the present claims. Absent a showing of superior/unexpected results commensurate in scope with the present claims, it is the examiner's position that it would have been with the level of skill in the art to select suitable dopants from known fluorescent material. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a benzenoid material such as taught by Ohnuma as a dopant in Shi's light emitting layer in order to tune the color of the EL device.

Response to Arguments

8. Applicant's arguments filed January 31, 2007 have been fully considered but they are not persuasive. Applicant argues that the Ohnuma reference does not read on the amended claims. Applicant argues that Ohnuma does not disclose a blue organic electroluminescence device or a plurality of materials in the emitting layer. Ohnuma discloses in column 12, lines 59-67 that the electroluminescent device emits blue light. Additionally, Ohnuma discloses that the luminescent material comprises a plurality of materials and a compound with the formula



wherein A¹ and A² each represents a substituted or unsubstituted alkyl group, or a substituted or unsubstituted aryl group, which may be identical or different with each other, Ar represents a

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substituted or unsubstituted pyrenyl group and n represents 1. The compound of general formula of the Ohnuma reference emits blue light.

Applicant also argues that the combination of the Shi and Ohnuma reference does not suggest the present invention. Shi discloses a host material of an anthracene compound that is doped with a benzenoid compound. The Ohnuma reference was brought in to show that a benzenoid compound such as the benzonoid compound with general formula 1 can be used in the luminescent layer with a plurality of other materials. The rejections are maintained.

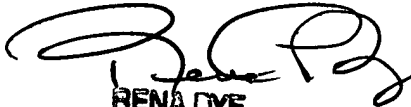
9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L. Dye, can be reached at (571) 272-3186. The fax phone number for the Group is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


RENA DYE
SUPERVISORY PATENT EXAMINER
AU 1774